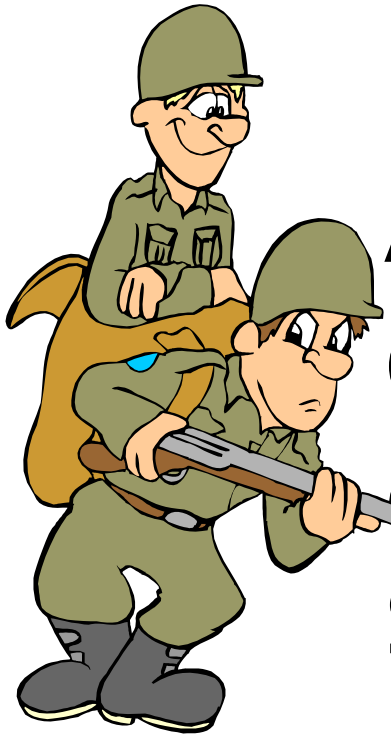
Hearing Conservation



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Chief, Audiology Services

Outline

- Causes of hearing loss
- Symptoms/warning signs
- Sources of noise
- Situations where good hearing is critical
- How to Protect Your Hearing
- How to Understand Your Hearing Test
- Your Responsibilities

Did You Know????

+Noise-induced hearing loss is the number one occupational disability

+It is generally painless

+It is progressive over time

+It is permanent

+IT IS PREVENTABLE!!!

What are some causes of hearing loss?

- The number one cause of hearing loss in the army is NOISE!
- Environmental chemicals
- Medicinal Drugs
- Injuries to head or ear
- Infections
- Tumors

Noise Induced Hearing Loss

- Initially, exposure to noise causes a loss of sensitivity to high frequency (high pitch) sound.
- Continued exposure results in damage to mid frequency region as well.
- One can experience progressive high frequency hearing loss and not be aware of it until it becomes severe

How Can We Acquire Noise-Induced Hearing Loss?

- ACOUSTIC TRAUMA – ONE TIME EXPOSURE TO LOUD SOUND

OR

- DAILY EXPOSURES TO MODERATELY LOUD SOUNDS

Symptoms/ Warning Signs of Hearing Loss

- Speech sounds distorted or muffled
- Difficulty understanding speech, especially with background noise
- Muffling of sounds after noise exposure
- Ringing or buzzing sounds in the ear

Symptoms/Warning Signs of Hearing Loss

- Difficulty hearing on the telephone
- Need for loud volume on TV or radio
- Frequently asking people to repeat themselves
- Difficulty hearing some pitches (usually high frequency)

What are different sources of noise?

- Weapons firing
- Power tools
- Loud music: concerts,stereos,headphone
- Powered lawnmowers
- Aircraft
- Noisy vehicles
- Construction Equipment
- Sirens
- Fire engines

When is Noise Defined to be a Hazard?

-85dBA for steady-state noise sources

-140dBP for impulse/impact noise sources

Examples of Steady State Noise

- Rustling Leaves 20dB
- Conversation 60dB
- Lawnmower 95dB
- Handsaw 85dB
- Electric Drill 95dB
- Pneumatic Drill 120dB
- Chainsaw/Powersaw 110-120 dB
-

Examples of Steady State Noise

- Snowblower 105dB
- Helicopter 110dB
- Ambulance Sirens 120dB
- Jet Planes 120dB
- Live Concert 130dB

Examples of Impulse Noise

- Firecracker 150 dB
- Rifle 163 dB
- Handgun 166 dB
- Shotgun 170 dB

HOW DO WE KNOW SOMETHING IS TOO LOUD?

- Could use 3 foot rule
  - If you have to raise your voice to be heard by someone standing within 3 foot (arm's length) then the level is most likely above the hazardous noise level

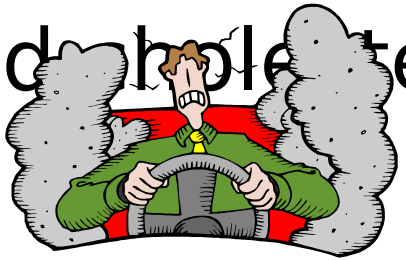
    or

  - Objectively measure loudness with proper equipment

Other Health Effects of Noise

The Effects of Noise are Similar to a Startle or Stress Response:

- Increased muscle tension
- Increased heart rate, blood pressure, and cholesterol



Why is noise a problem on the job?

- It creates safety hazards by masking alarms and other warning sounds
- It discourages communication between workers because shouting is hard to do and hard to listen to
- Noise makes it harder for people with hearing loss to understand speech

Why is Protecting My Hearing So Important?

- Hearing loss destroys your ability to hear and understand speech, especially in background noise
- Hearing loss is permanent and not medically treatable

Why is Protecting My Hearing So Important?

- **Loss of hearing sensitivity due to hazardous noise exposures from either steady state noise or impulse noise does occur even before we can measure the change!**

Why is Protecting My Hearing So Important?

- Impaired hearing can cause serious or fatal mistakes in training and emergency operation situations
- Good hearing is needed for the success of the mission and saving lives

Situations Where Good Hearing is Critical

- Determining location of victims
- Hearing radio messages
- Hearing verbal orders

EFFECTS OF HEARING ON THE MISSION

A normal listener can hear

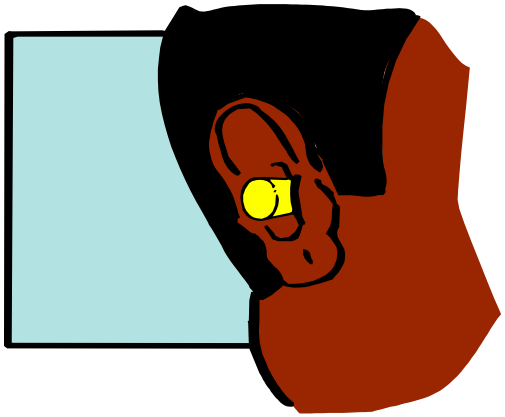
- footsteps at 100 meters
- voices at 180 meters
- rifle bolt closing at 1000 meters

A person with a hearing loss can hear

- footsteps at < 1 meter
- voices at 32 meters
- rifle bolt closing at 46 meters

How Can I Protect My Hearing?

- Reduce noise in the environment
- Wear well-fitted hearing protection

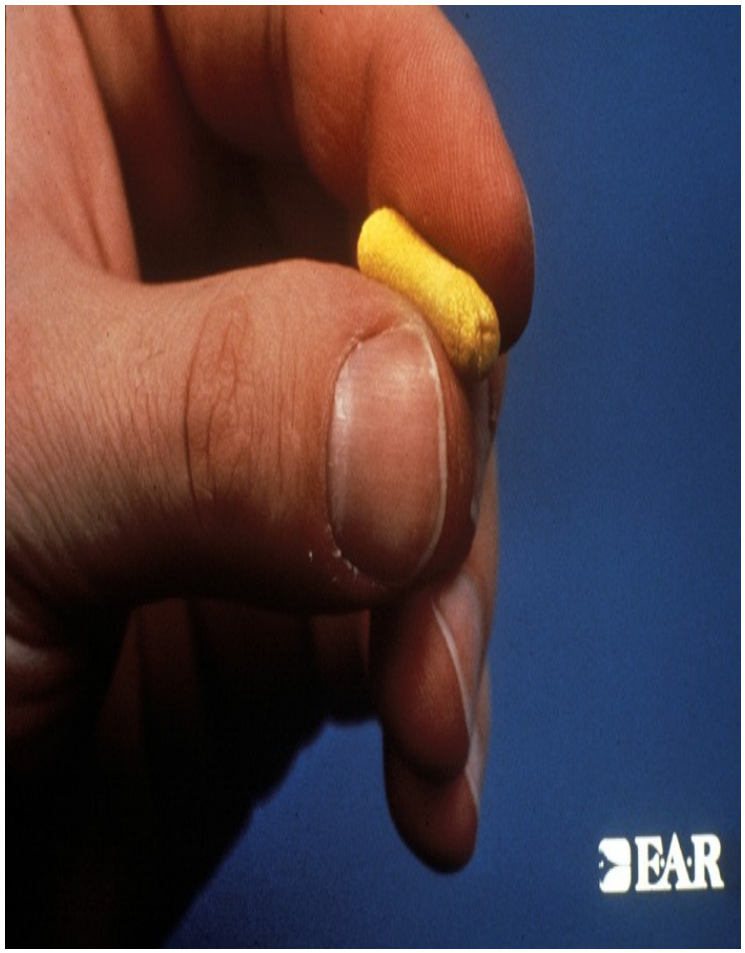


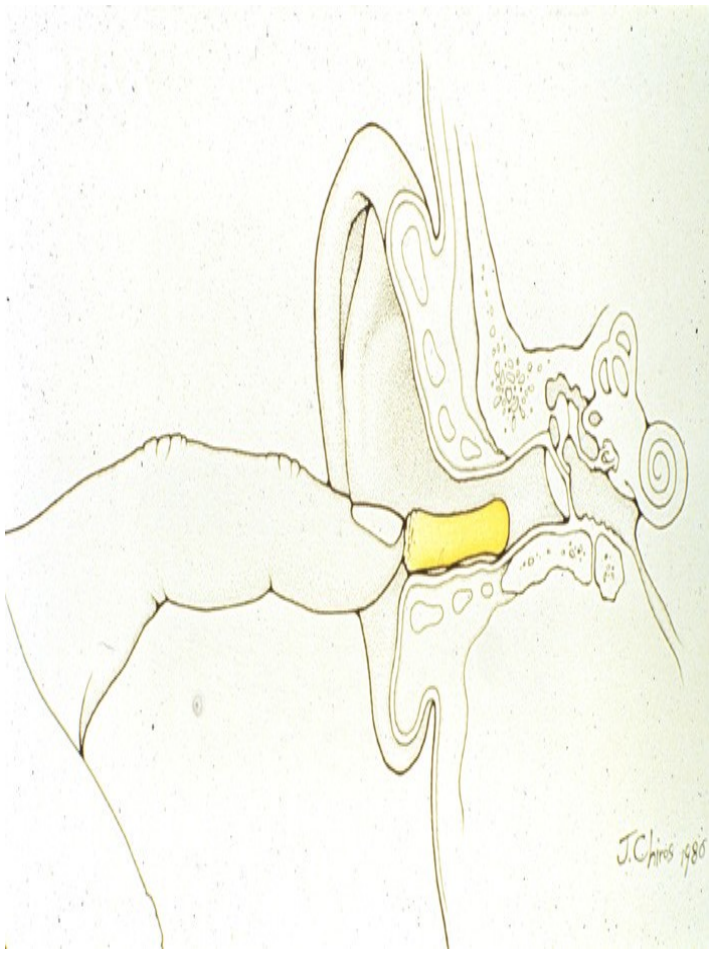
Circumaural Noise Muffs

GOOD FIT

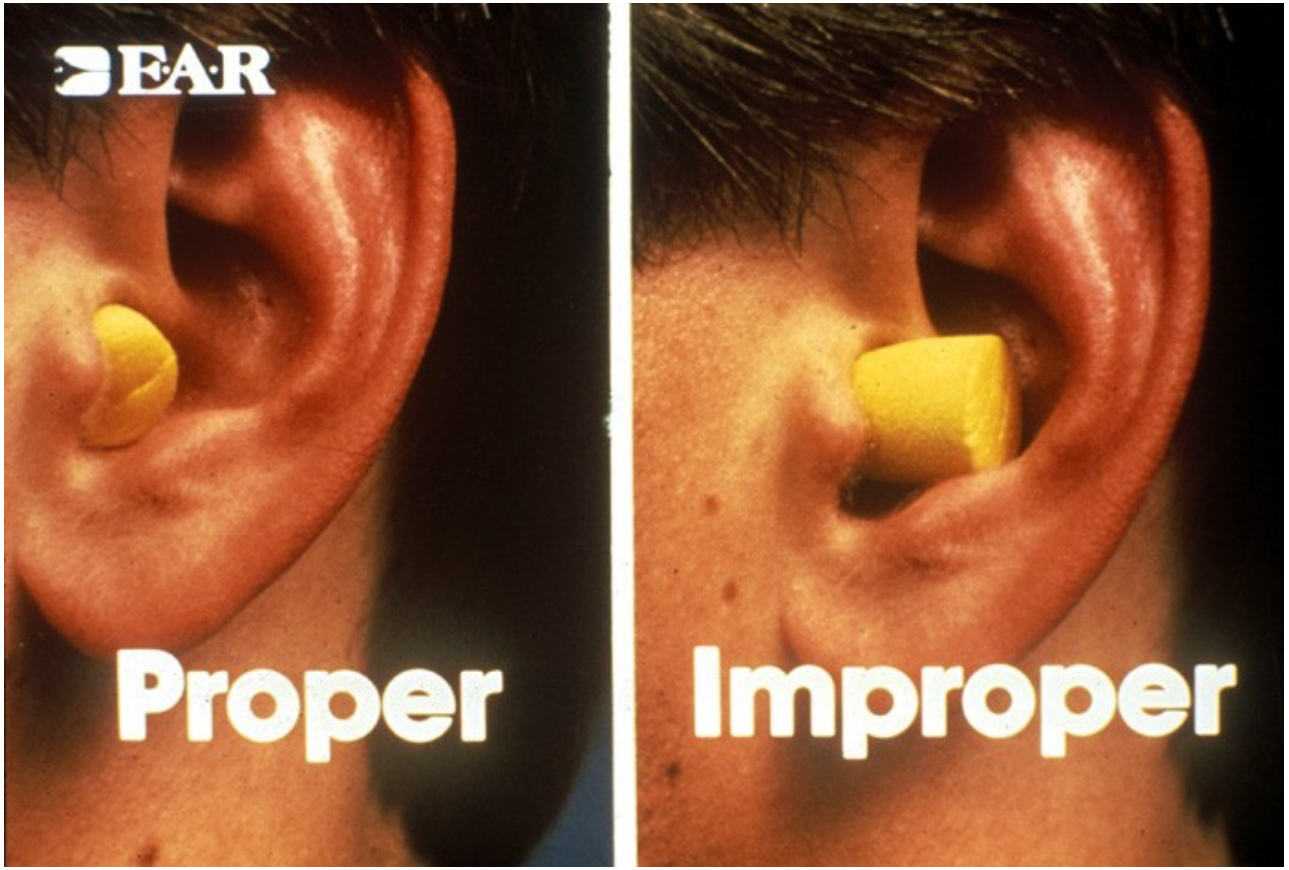
BAD FIT

How to Insert Foam Earplugs





Good Fit vs. Bad Fit



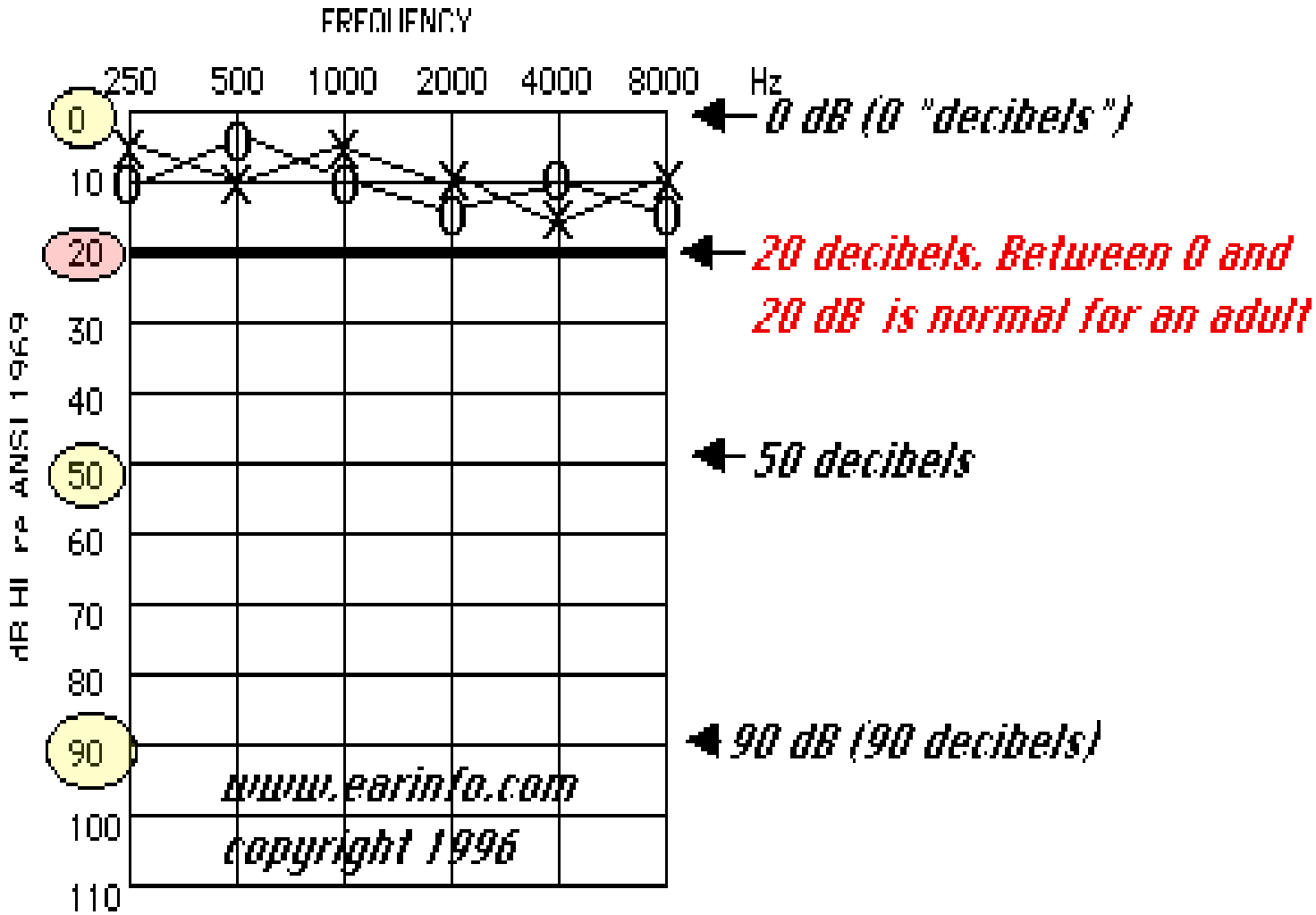
Characteristics of Earplugs with a "Good Fit"

- **Voices sound muffled**
- **"Vacuum" effect**
- **Comfortable**
- **Single flange tab facing toward back of ear**
- **Largest flange of triple flange is flush against ear canal opening**

What if I can't hear speech when I use my hearing protection?

The REALITY with background noise is that people raise their voices in order to hear themselves talk over the noise. Thus, the loudness of speech is not affected by using hearing protection.

If you have hearing loss, yes, this will affect your ability to hear in noise, even with the hearing protection. However, you should still take measures to preserve the hearing you have left.


FREQUENCY
250
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100
110
dB HL re ANSI 1969
0 dB (0 "decibels")
20 decibels. Between 0 and 20 dB is normal for an adult
50 decibels
90 dB (90 decibels)
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Listening through HPDs takes practice….by wearing HPDs, you are protecting yourself against temporary threshold shifts which could lead to permanent hearing loss..by not protecting yourself,the shift in your hearing could be permanent!!!!

Your Responsibilities as per DA PAM 40-501

- All noise-exposed personnel must wear hearing protection while participating in noise-hazardous activities. This includes, but is not limited to: weapons firing, live-fire exercises, operating or repairing noisy vehicles and equipment.

- All personnel must receive, at the minimum, an initial (on form DD 2215) and annual (on form DD2216) hearing test. You must also obtain a hearing test before ETS.

Where do I get my hearing tested?

- Hearing Conservation Testing is performed at Building 3504, and is open from 8:30-11:00 Monday thru Friday.
- Please take medical records with you to your hearing test

Conclusion

- Hearing loss is painless
- Hearing loss is not reversible
- The best type of hearing protection is the type that is worn correctly

Questions?

- Please direct any questions you may have to Captain Deepa Hariprasad at 337-531-192 or schedule an appointment at our EENT clinic at Bayne Jones Army Community Hospital. Thank You!